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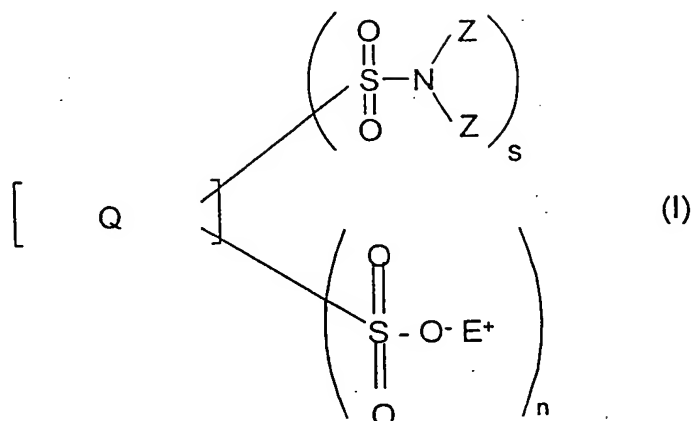
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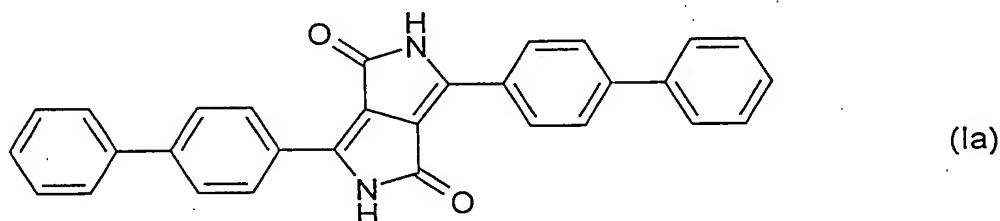
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CLAIMS:

- 1) A pigment dispersant of the formula (I)



in which Q is a radical of the diketopyrrolopyrrole compound of the formula (Ia)



s is a number from 0.1 to 4.0,

n is a number from 0 to 2,

E⁺ is H⁺ or the equivalent M^{m+}/m of a metal cation M^{m+} from main groups 1 to 5 or transition groups 1 or 2 or 4 to 8 of the periodic system of the chemical

elements, m being 1, 2 or 3, an ammonium ion N⁺R⁹R¹⁰R¹¹R¹², where the substituents R⁹, R¹⁰, R¹¹ and R¹² independently of one another are each a hydrogen atom, C₁-C₃₀-alkyl, C₂-C₃₀-alkenyl, C₅-C₃₀-cycloalkyl, phenyl, (C₁-C₈)-alkyl-phenyl, (C₁-C₄)-alkylene-phenyl, or a (poly)alkyleneoxy group of the formula -[CH(R⁸⁰)-CH(R⁸⁰)-O]_k-H, in which k is a number from 1 to 30 and the two radicals R⁸⁰

independently of one another are hydrogen, C₁-C₄-alkyl or, if k is > 1, a combination thereof;

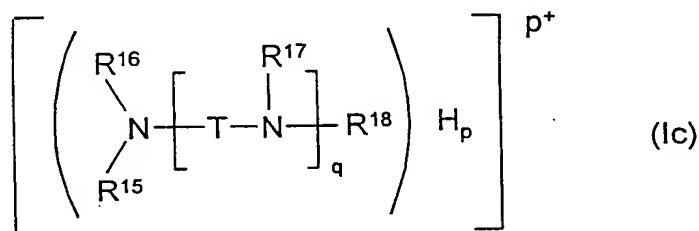
and in which alkyl, alkenyl, cycloalkyl, phenyl or alkylphenyl is optionally substituted by amino, hydroxyl, carboxyl, or a combination thereof;

5 or where the substituents R⁹ and R¹⁰, together with the quaternary nitrogen atom, are able to form a five- to seven-membered saturated ring system optionally containing further heteroatoms from the group consisting of O, S and N,

or where the substituents R⁹, R¹⁰ and R¹¹, together with the quaternary nitrogen atom, are able to form a five- to seven-membered aromatic ring system, optionally

10 containing further heteroatoms from the group consisting of O, S and N, and to which additional rings are optionally fused,

or in which E⁺ defines an ammonium ion of the formula (Ic)



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in which

R¹⁵, R¹⁶, R¹⁷ and R¹⁸ independently of one another are hydrogen or a

(poly)alkyleneoxy group of the formula $-[CH(R^{80})-CH(R^{80})O]_k-H$, in which k is a number from 1 to 30 and the two radicals R⁸⁰ independently of one another

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are hydrogen, C₁-C₄-alkyl or, if k is > 1, a combination thereof;

q is a number from 1 to 10,

p is a number from 1 to 5, where p is ≤ q+1;

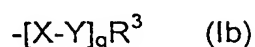
T is a branched or unbranched C₂-C₆-alkylene radical; or in which T, if q is > 1, may also be a combination of branched or unbranched C₂-C₆-alkylene

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radicals;

and in which the two radicals Z are identical or different and Z has the definition Z¹ or Z⁴, where

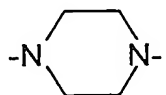
Z¹ is a radical of the formula (Ib)



5 in which

X is a C₂-C₆-alkylene radical, a C₅-C₇-cycloalkylene radical, or a combination of these radicals, it being possible for these radicals to be substituted by from 1 to 4 C₁-C₄-alkyl radicals, hydroxyl radicals, (C₁-C₄)-hydroxyalkyl radicals, by 1 or 2 C₅-C₇-cycloalkyl radicals, or in which X, if q is > 1, may also be a combination of said definitions;

10 Y is a -O-;



or -NR² - group,

or in which Y, if q is > 1, may also be a combination of said definitions;

15 q is a number from 1 to 10;

R² and R³ independently of one another are a hydrogen atom, a substituted or unsubstituted, or partly fluorinated or perfluorinated, branched or unbranched (C₁-C₂₀)-alkyl group, a substituted or unsubstituted C₅-C₇-cycloalkyl group or a substituted or unsubstituted, or partly fluorinated or perfluorinated (C₂-C₂₀)-alkenyl group, it being possible for the substituents to be hydroxyl, phenyl, cyano, chloro, bromo, amino, C₂-C₄-acyl or C₁-C₄-alkoxy, or

20 R² and R³, together with the nitrogen atom, form a saturated, unsaturated or aromatic heterocyclic 5- to 7-membered ring optionally containing 1 or 2 further nitrogen, oxygen or sulfur atoms or carbonyl groups in the ring, optionally being substituted by 1, 2 or 3 of the radicals OH, phenyl, CN, Cl, Br, C₁-C₄-alkyl, C₁-C₄-alkoxy, C₂-C₄-acyl and carbamoyl, and optionally carrying 1 or 2 benzo-fused saturated, unsaturated or aromatic, carbocyclic or heterocyclic rings;

30 and where

Z^4 is hydrogen, hydroxyl, amino, phenyl, (C_1-C_4) -alkylene-phenyl, C_5-C_7 -cycloalkyl or C_1-C_{20} -alkyl, it being possible for the phenyl ring, the (C_1-C_4) -alkylene-phenyl group and the alkyl group to be substituted by one or more substituents from the group consisting of Cl, Br, CN, NH_2 , OH, C_6H_5 , mono-, di- or tri- C_1-C_4 -alkoxy-substituted C_6H_5 , carbamoyl, C_2-C_4 -acyl and C_1-C_4 -alkoxy, and it being possible for the phenyl ring and the (C_1-C_4) -alkylene-phenyl group to be substituted by NR^2R^3 , or the alkyl group is perfluorinated or partly fluorinated.

2) The pigment dispersant as claimed in claim 1, wherein s is a number from 0.2 to 3.0, preferably from 0.5 to 2.5; and n is a number from 0 to 0.5.

3) The pigment dispersant as claimed in claim 1, wherein s is a number from 0.5 to 2.5, and n is a number from 0 to 0.2.

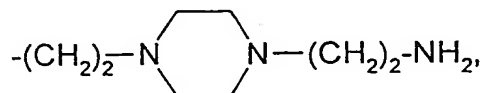
4) The pigment dispersant as claimed in claim 1, wherein

R^2 and R^3 independently of one another are a hydrogen atom, a C_1-C_6 -alkyl group or a C_1-C_6 -alkyl group substituted by 1 or 2 substituents from the group consisting of hydroxyl, acetyl, methoxy, ethoxy, chloro and bromo, or R^2 and R^3 , together with the adjacent nitrogen atom, form an imidazolyl, piperidinyl, morpholinyl, pipercolinyl, pyrrolyl, pyrrolidinyl, pyrazolyl, pyrrolidinonyl, indolyl or piperazinyl ring.

5) The pigment dispersant as claimed in claim 1, wherein Z^1 has the definition

$-[(CH_2)_3-NH]_2-H$, $-(CH_2-CH_2-NH)_2H$,

$-(CH_2)_3-NH-(CH_2)_2-NH-(CH_2)_3-NH_2$,

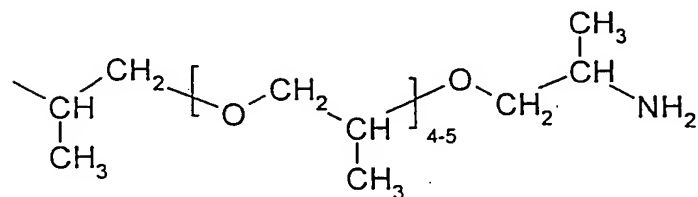
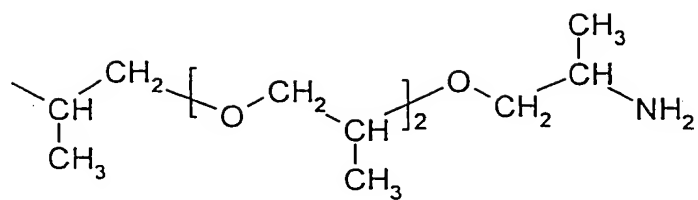


$-(CH_2)_3-N(CH_3)-(CH_2)_3-NH_2$, $-(CH_2)_3-O-(CH_2)_2-O-(CH_2)_3-NH_2$,

$-(CH_2)_3-O-(CH_2)_3-O-(CH_2)_3-NH_2$, $-(CH_2)_2-NH-(CH_2)_3-NH_2$, $-(CH_2)_3-NH-(CH_2)_2-NH_2$,

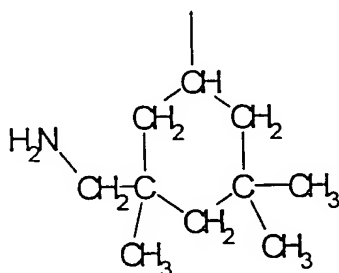
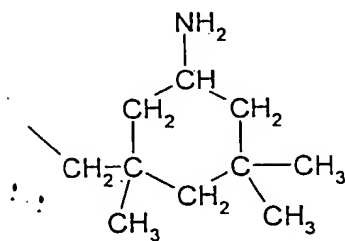
$-(CH_2-CH_2-NH)_3-H$, $-(CH_2-CH_2-NH)_4-H$, $-(CH_2-CH_2-NH)_5-H$,

$-(CH_2)_3-O-(CH_2)_2-O-(CH_2)_2-O-(CH_2)_3-NH_2$, $-(CH_2)_3-O-(CH_2)_4-O-(CH_2)_3-NH_2$,



-(CH₂)₂-OH, -(CH₂)₃-OH, -CH₂-CH(CH₃)-OH, -CH(CH₂-CH₃)CH₂-OH, -CH(CH₂OH)₂,

$-(CH_2)_2-O-(CH_2)_2-OH$ or $-(CH_2)_3-O-(CH_2)_2-O-(CH_2)_2-OH$; $-(CH_2)_2-NH_2$, $-(CH_2)_3-NH_2$,
 $-CH_2-CH(CH_3)-NH_2$, $-CH_2-C(CH_3)_2-CH_2-NH_2$,



$-(CH_2)_2-NH-CH_3$,

$-(CH_2)_2-N(CH_3)_2$, $-(CH_2)_2-NH-CH_2-CH_3$, $-(CH_2)_2-N(CH_2-CH_3)_2$, $-(CH_2)_3-NH-CH_3$,
 $-(CH_2)_3-N(CH_3)_2$, $-(CH_2)_3-NH-CH_2-CH_3$ or $-(CH_2)_3-N(CH_2-CH_3)_2$.

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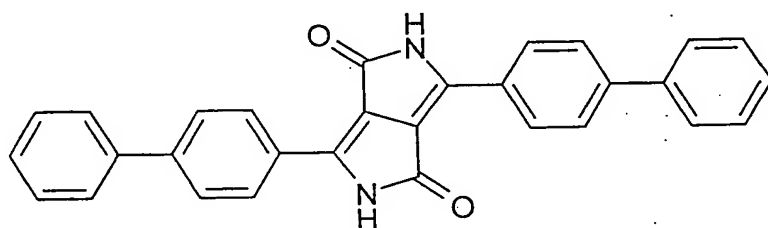
6) The pigment dispersant as claimed in claim 1, wherein Z^4 has the definition hydrogen, amino, phenyl, benzyl, NR^2R^3 -substituted phenyl or benzyl, C_1 - C_6 -alkyl, or a C_2 - C_6 -alkyl, phenyl or benzyl substituted by 1 or 2 substituents from the group consisting of hydroxyl, acetyl, methoxy and ethoxy.

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7) The pigment dispersant as claimed in claim 1, wherein X is a C_2 - C_4 -alkylene radical or cyclohexylene.

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8) A process for preparing a pigment dispersant as claimed in claim 1, which comprises chlorosulfonating a diketopyrrolopyrrole compound of the formula (Ia)



(Ia)

and reacting the resultant sulfochloride with an amine of the formula (V)

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- 9) A pigment preparation comprising
- a) at least one organic base pigment, and
 - b) at least one pigment dispersant of the formula (I) as claimed in claim 1.

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10) A pigment preparation as claimed in claim 9, wherein the organic base pigment a) is a perylene, perinone, quinacridone, quinacridonequinone, anthraquinone, anthanthrone, benzimidazolone, disazo condensation, azo, indanthrone, phthalocyanine, triarylcarbonium, dioxazine, aminoanthraquinone, diketopyrrolopyrrole, thioindigo, isoindoline, isoindolinone, pyranthrone, isoviolanthrone or carbon black pigment or a mixture thereof.

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- 11) The pigment preparation as claimed in claim 9, consisting essentially of
- a) from 50 to 99.5% by weight of at least one base pigment a),
 - b) from 0.5 to 20% by weight of at least one pigment dispersant b) of the formula (I),
 - c) from 0 to 20% by weight of surfactants, and
 - d) from 0 to 20% by weight of further customary additives,
- the fractions of the respective components being based on the overall weight of the preparation (100% by weight).

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- 12) The pigment preparation as claimed in claim 9, consisting essentially of
- a) from 60 to 98.8% by weight of at least one base pigment a),
 - b) from 1 to 15% by weight of at least one pigment dispersant b) of the formula (I),
 - c) from 0.1 to 15% by weight of surfactants, and
 - d) from 0.1 to 10% by weight of further customary additives,
- the fractions of the respective components being based on the overall weight of the preparation (100% by weight).

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13) A process for preparing a pigment preparation as claimed in claim 9, which comprises mixing the pigment dispersant(s) as per b) and the base pigment(s) with one another.

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14) A method of pigmenting high molecular mass organic material, electrophotographic toners and developers, and writing, drawing and printing inks comprising the step of adding a pigment preparation as claimed in claim 9 to a high molecular mass organic material, electrophotographic toner and developer, or to the basis of a writing, drawing or printing ink to be pigmented.

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15) The method as claimed in claim 14, wherein the high molecular mass organic material is a plastic, a resin, a varnish or a paint.

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16) A prepared pigment formulation consisting essentially of

- a) one or more organic base pigments;
- b) one or more pigment dispersants of the formula (I) as claimed in claim 1; and
- c) a high molecular mass organic material.